



Docket No. 49447-2USPX
2413-PME4974-529

Clean version of claims pending after response to Office Action dated 5/23/01:

1. (Amended) An apparatus for separating motile spermatozoa from non-motile spermatozoa in a liquid sample, the apparatus comprising (i) a vessel having a sample receiving inlet, a filtered sample outlet and a sample separation filter mounted therebetween, the sample separation filter having a sample-receiving surface and an opposed surface, and the sample separation filter being effective to prevent flow of the sample therethrough, but permitting passage of motile spermatozoa therethrough when said opposed surface of said sample separation filter is placed in contact with a non-sample liquid medium and (ii) means for supplying a non-sample liquid to said opposed surface of said filter, and further comprising a spermatozoa detection means on the outlet side of the sample separation filter, and spaced therefrom, and a liquid release mechanism, wherein upon activation of the liquid release mechanism, liquid from an integral liquid supply is applied to the sample filtered end of the sample separation filter to provide liquid communication with the spermatozoa detection means.

2. An apparatus according to claim 1, wherein the sample separation filter is of a gel or foam construction.

3. An apparatus according to claim 1, wherein the filter is fibrous.

4. An apparatus according to claim 3, wherein the fibrous filter is made of glass wool or polypropylene.

5. (Amended) An apparatus according to claim 1, wherein the sample additionally comprises non-motile spermatozoa and spermatozoa with reduced motility.

6. (Canceled) An apparatus according to claim 1, comprising a spermatozoa detection means on the outlet side of the sample separation filter, and spaced therefrom.

7. (Amended) An apparatus according to claim 1, wherein the detection means is integral with the apparatus.

8. (Amended) An apparatus according to claim 1, wherein the detection means is a separable component of the apparatus for inserting into the apparatus before, during or after placing the sample separation filter in contact with the liquid medium.

9. An apparatus according to claim 1, wherein the filter has a thickness of 100-2000 μ m.

10. (Twice Amended) An apparatus according to claim 9, wherein the filter has a thickness of 200-1000 μ m.

5^a 11. An apparatus according to claim 10, wherein the filter has a thickness off about 600 μ m.



12. (Twice Amended) An apparatus according to claim 1, wherein the filter has a minimum particle retention size of 5-100 μ m.

13. An apparatus according to claim 2, wherein the apparatus has an underlying grid ^{that supports} lattice ~~for supporting the filter~~.

14. (Twice amended) An apparatus according to claim 1, wherein a reagent or a combination of reagents is/are adapted to directly or indirectly generate a visual signal on interaction with spermatozoa located in the spermatozoa detection means.

15. (Amended) An apparatus according to claim 14, wherein the reagent or combination of reagents include antibodies that detect an antigen present on spermatozoa and can bind spermatozoa.

16. (Amended) An apparatus according to claim 15, wherein spermatozoa, when immobilized by the antibodies, are visually detectable using a visually detectable reagent which binds to spermatozoa.

17. (Twice amended) An apparatus according to claim 1, wherein a spermatozoa chemoattractant is located in the spermatozoa detection means.

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18. An apparatus according to claim 17, wherein the spermatozoa chemoattractant is located in a portion of the spermatozoa detection means distal from the sample separation filter.

19. (Twice amended) An apparatus according to claim 1, wherein a pick-up zone is located either in the sample separation filter or the spermatozoa detection means, said pick-up zone comprising a reagent or combination of reagents which can bind spermatozoa and being transported therewith to a detection area of the spermatozoa detection means.

20. An apparatus according to claim 19, wherein the reagent or combination of reagents of the pick-up zone include antibodies that detect an antigen present on spermatozoa.

21. (Amended) An apparatus according to claim 20, wherein the antibodies that detect an antigen present on spermatozoa are detectably labeled.

22. (Amended) An apparatus according to claim 21, wherein the antibodies that detect an antigen present on spermatozoa are detectably labeled with gold particles.

23. (Twice amended) An apparatus according to claim 20, wherein the antibodies that are located in a detection area of the spermatozoa detection means recognize a different spermatozoa antigen compared to the antibodies located in the pick-up zone.



24. (Twice amended) An apparatus according to claim 20, wherein the antibodies that are located in a detection area of the spermatozoa detection means recognize the same spermatozoa antigen as the antibodies located in the pick-up zone.

25. (Twice amended) An apparatus according to claim 1, wherein the spermatozoa detection means comprises a spermatozoa acrosome-lysing reagent and a means for detecting pH change.

26. An apparatus according to claim 25, wherein the spermatozoa acrosome-lysing reagent is a lysis buffer.

27. (Amended) An apparatus according to claim 26, wherein the lysis buffer comprises Proteinase K or calcium ionophore A24297.

28. An apparatus according to claim 25, wherein the means for detecting pH change is a pH sensitive probe.

29. (Twice amended) An apparatus according to claim 25, wherein the means for detecting pH change is a pH indicator reagent adapted to visually detect a pH change.

30. An apparatus according to claim 29, wherein the pH indicator reagent is bromocresol purple.

31. (Amended) An apparatus according to claim 1, wherein the sample receiving surface of the sample separating filter contains an enzymatic liquefaction agent.

45. (Twice amended) A method of detecting the presence of motile sperm in a sample, comprising:

- (a) providing a filter having first and second surfaces, the filter permitting migration of the motile sperm therethrough when a liquid is applied to the second surface, wherein the filter is the filter container within the apparatus of any of claims 1 to 31,
- (b) applying the sample to the first surface,
- (c) applying a liquid to the second surface,
- (d) providing a well for containing said liquid, and
- (e) detecting sperm that has migrated through the filter and through said liquid.

52. (New) An apparatus according to claim 9, wherein the filter has a thickness of approximately 400-800 μ m.

53. (New) An apparatus according to claim 12, wherein the filter has a minimum particle retention size of approximately 8-60 μ m.

54. (New) An apparatus according to claim 12, wherein the filter has a minimum particle retention size of approximately 10-40 μ m.



55. (New) An apparatus according to [any preceding claim] claim 2, wherein the sample additionally comprises non-motile spermatozoa and spermatozoa with reduced motility.

56. (New) An apparatus according to [any preceding claim] claim 3, wherein the sample additionally comprises non-motile spermatozoa and spermatozoa with reduced motility.

57. (New) An apparatus according to [any preceding claim] claim 2, wherein the sample additionally comprises non-motile spermatozoa and spermatozoa with reduced motility.

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